## What is claimed is:

1. A compound for modulating kinase activity, particularly Tie-2, of Formula I,

or a pharmaceutically acceptable salt, hydrate, or prodrug thereof, wherein,

X is selected from -H,  $-OR^6$ ,  $-S(O)_{0-2}R^6$ ,  $-N(R^6)R^7$ ,  $-O-N(R^6)R^7$ ,  $-N(R^6)OR^6$ ,  $-N(R^6)N(R^6)R^7$ , absent, oxo, thiono, and imino, with the proviso that when X is oxo, thiono, or imino, there is only one  $R^1$ ;

 $R^1$  and  $R^2$ , at each occurance, are each independently selected from -H, halogen, -CN, -NH<sub>2</sub>, -NO<sub>2</sub>, -OR<sup>6</sup>, -N(R<sup>6</sup>)R<sup>7</sup>, -S(O)<sub>0-2</sub>R<sup>7</sup>, -SO<sub>2</sub>N(R<sup>6</sup>)R<sup>7</sup>, -CO<sub>2</sub>R<sup>6</sup>, -C(O)N(R<sup>6</sup>)R<sup>7</sup>, -N(R<sup>6</sup>)SO<sub>2</sub>R<sup>7</sup>, -N(R<sup>6</sup>)C(O)R<sup>7</sup>, -N(R<sup>6</sup>)CO<sub>2</sub>R<sup>7</sup>, -C(O)R<sup>6</sup>, optionally substituted lower alkyl, optionally substituted aryl, optionally substituted lower arylalkyl, optionally substituted heterocyclyl, absent, and optionally substituted lower heterocyclylalkyl;

optionally two of R<sup>2</sup> together are oxo;

optionally, at least one pair of substituents, selected from two of  $R^1$ , two of  $R^2$ , and one each of  $R^1$  and  $R^2$ , together with the corresponding carbon or carbons to which they are attached, form a first ring comprising between three and seven annular atoms, said first ring optionally substituted with between zero and four additional of  $R^1$ , each independently selected as defined above and optionally, when paired, together with the corresponding atom or atoms of the first ring to which they are attached, form a second ring comprising between three and seven annular atoms, said second ring optionally substituted with between zero and three of  $R^1$ ;

R<sup>3</sup> is selected from -H, optionally substituted lower alkyl, optionally substituted lower arylalkyl, optionally substituted aryl, optionally substituted heterocyclyl, and optionally substituted alkoxy;

optionally R<sup>3</sup> and one of R<sup>2</sup>, together with the atoms to which each is attached, form a third ring comprising between three and seven annular atoms, said third ring optionally

substituted with between zero and four additional of R<sup>1</sup>, each independently selected as defined above and optionally, when paired, together with the corresponding atom or atoms of the third ring to which they are attached, form a fourth ring comprising between three and seven annular atoms, said fourth ring optionally substituted with between zero and three of R<sup>1</sup>;

optionally  $R^3$  and one of  $R^1$ , together with the atoms to which they are attached and the carbon to which  $R^2$  is attached, form a fifth ring comprising between three and seven annular atoms atoms, said fifth ring optionally substituted with between zero and four additional of  $R^1$ , each independently selected as defined above and optionally, when paired, together with the corresponding atom or atoms of the fifth ring to which they are attached, form a sixth ring comprising between three and seven annular atoms, said sixth ring optionally substituted with between zero and three of  $R^1$ ;

## m is zero to four;

each of  $R^4$  is independently selected from -H, halogen, -CN, -NH<sub>2</sub>, -NO<sub>2</sub>, -OR<sup>6</sup>, -N(R<sup>6</sup>)R<sup>7</sup>, -S(O)<sub>0-2</sub>R<sup>7</sup>, -SO<sub>2</sub>N(R<sup>6</sup>)R<sup>7</sup>, -CO<sub>2</sub>R<sup>6</sup>, -C(O)N(R<sup>6</sup>)R<sup>7</sup>, -N(R<sup>6</sup>)SO<sub>2</sub>R<sup>7</sup>, -N(R<sup>6</sup>)C(O)R<sup>7</sup>, -N(R<sup>6</sup>)CO<sub>2</sub>R<sup>7</sup>, -C(O)R<sup>6</sup>, optionally substituted lower alkyl, optionally substituted aryl, optionally substituted lower heterocyclylalkyl;

optionally two adjacent of R<sup>4</sup>, together with the two carbons to which they are attached, form a seventh ring fused with the aromatic ring system containing Z as in Formula I, said seventh ring comprising between five and seven atoms and substituted with zero to three additional of R<sup>4</sup>, provided said seventh ring together with the aromatic ring system containing Z as in Formula I does not constitute a 7-deazapurine;

each Y is independently either  $=C(R^5)$ - or =N-, provided that there are no more than three of =N- in the aromatic ring bearing Y;

each Z is independently either  $=C(R^4)$ - or =N-;

## n is zero to five;

each  $R^5$  is independently selected from -H, halogen, -CN, -NH<sub>2</sub>, -NO<sub>2</sub>, -OR<sup>6</sup>, -NR<sup>6</sup>R<sup>7</sup>, -S(O)<sub>0-2</sub>R<sup>7</sup>, -SO<sub>2</sub>NR<sup>6</sup>R<sup>7</sup>, -CO<sub>2</sub>R<sup>6</sup>, -C(O)NR<sup>6</sup>R<sup>7</sup>, -N(R<sup>6</sup>)SO<sub>2</sub>R<sup>7</sup>, -N(R<sup>6</sup>)C(O)R<sup>7</sup>, -N(R<sup>6</sup>)CO<sub>2</sub>R<sup>7</sup>, -C(O)R<sup>6</sup>, optionally substituted lower alkyl, optionally substituted aryl, optionally substituted lower arylalkyl, optionally substituted heterocyclyl, and optionally substituted lower heterocyclylalkyl; and

optionally two adjacent of R<sup>5</sup>, together with the two carbons to which they are attached, form an eighth ring fused with the aromatic ring system containing Y as in Formula I, said eighth ring comprising between five and seven atoms and substituted with zero to three additional of R<sup>5</sup>;

## $R^6$ is -H or $R^7$ ;

4

R<sup>7</sup> is selected from optionally substituted lower alkyl, optionally substituted aryl, optionally substituted lower arylalkyl, optionally substituted heterocyclyl, and optionally substituted lower heterocyclylalkyl; and

R<sup>6</sup> and R<sup>7</sup>, when taken together with a common nitrogen to which they are attached, form an optionally substituted five- to seven-membered heterocyclyl ring, said optionally substituted five- to seven-membered heterocyclyl ring optionally containing at least one additional heteroatom selected from N, O, S, and P.

2. The compound according to claim 1, of Formula II.

П

- 3. The compound according to claim 2, wherein at least one of Z is =N-.
- 4. The compound according to claim 2, wherein Z is =N-.
- 5. The compound according to claim 4, wherein Y is  $=C(R^5)$ -.
- 6. The compound according to claim 5, of Formula III.

$$R^{1}$$
 $R^{1}$ 
 $R^{3}$ 
 $R^{2}$ 
 $R^{2}$ 
 $R^{2}$ 
 $R^{3}$ 
 $R^{5}$ 
 $R^{5}$ 
 $R^{5}$ 

Ш

7. The compound according to claim 6, wherein one each of  $R^1$  and  $R^2$ , together with the corresponding carbons to which they are attached, form said first ring, said first ring comprising a saturated ring, said saturated ring optionally substituted with between zero and four additional of  $R^1$ .

- 8. The compound according to claim 7, wherein said saturated ring is carbocyclic.
- 9. The compound according to claim 8, of Formula IV.

$$(R^{1})_{1-4}$$
 $(R^{5})_{0-3}$ 
 $(R^{5})_{0-3}$ 

- 10. The compound according to claim 9, wherein X is selected from  $-OR^6$ ,  $-SR^6$ , and  $-N(R^6)R^7$ .
- 11. The compound according to claim 10, wherein two of R<sup>1</sup>, together with the carbon or carbons to which they are attached, form said second ring.
- 12. The compound according to claim 11, wherein said second ring is a six-membered aryl, fused with said first ring, said second ring optionally substituted with between zero and three of R<sup>1</sup>.
- 13. The compound according to claim 12, of formula V.

$$(R^{1})_{0-3}$$
 $(R^{5})_{0-3}$ 
 $(R^{5})_{0-3}$ 

- 14. The compound according to claim 13, wherein X is -OR<sup>6</sup>.
- 15. The compound according to claim 14, wherein R<sup>3</sup> is -H.
- 16. The compound according to claim 15, wherein X is -OH.

17. The compound according to claim 16, of formula VI.

$$(R^1)_{0-3}$$
 $(R^4)_{0-3}$ 
 $(R^5)_n$ 

- 18. The compound according to claim 17, wherein R<sup>1</sup>, R<sup>4</sup>, and R<sup>5</sup> are -H.
- 19. The compound according to claim 5, of formula VII,

$$(R^{1})_{0-3} \xrightarrow{H} X \xrightarrow{R^{3}} N \xrightarrow{N} (R^{5})_{0-4}$$

$$VII$$

- 20. The compound according to claim 19, wherein X is selected from  $-OR^6$ ,  $-SR^6$ , and  $-N(R^6)R^7$ .
- 21. The compound according to claim 20, wherein X is -OH.
- 22. The compound according to claim 21, wherein R<sup>3</sup> is -H.
- 23. The compound according to claim 22, wherein at least one of R<sup>1</sup> is an optionally substituted aryl.
- 24. The compound according to claim 22, wherein at least one of  $\mathbb{R}^4$  is an optionally substituted aryl.
- 25. The compound according to claim 22, wherein at least one of R<sup>1</sup> is an optionally substituted phenyl.
- 26. The compound according to claim 22, wherein at least one of R<sup>4</sup> is an optionally substituted phenyl.

27. The compound according to claim 22, of formula VIII.

$$(R^{1})_{0-3}$$
 $(R^{5})_{0-4}$ 
 $(R^{5})_{0-4}$ 
 $(R^{5})_{0-4}$ 

- 28. The compound according to claim 27, wherein two of R<sup>4</sup>, together with the aromatic annular atoms to which they are attached, form said seventh ring, said seventh ring comprising between zero and two nitrogens.
- 29. The compound according to claim 28, wherein said seventh ring is substituted with between zero and three additional of  $\mathbb{R}^4$ .
- 30. The compound according to claim 1, selected from Table 3.

Table 3

| # | Name  | Structure |
|---|---|-----------|
| 1 | N-cyclohexyl-2-pyridin-4-ylquinazolin-4-<br>amine               | HN—N      |
| 2 | 2-pyridin-4-yl-N-(2-pyrrolidin-1-<br>ylethyl)quinazolin-4-amine | HN        |
| 3 | N-cyclopentyl-2-pyridin-4-ylquinazolin-4-<br>amine              | HN N      |
| 4 | N-(cyclohexylmethyl)-2-pyridin-4-<br>ylquinazolin-4-amine       | HN N      |

Table 3

| #  | Name  | Structure                              |
|----|---|--|
| 5  | 2-[(2-pyridin-4-ylquinazolin-4-<br>yl)amino]ethanol               | HN OH                                  |
| 6  | 3-[(2-pyridin-4-ylquinazolin-4-<br>yl)amino]propan-1-ol           | HN OH                                  |
| 7  | N-[(4-fluorophenyl)methyl]-2-pyridin-4-ylquinazolin-4-amine       | HN F                                   |
| 8  | N,N-dimethyl-N'-(2-pyridin-4-ylquinazolin-4-yl)ethane-1,2-diamine | HN N                                   |
| 9  | N-(2,3-dihydro-1H-inden-1-yl)-2-pyridin-4-ylquinazolin-4-amine    | HIN N                                  |
| 10 | N-(2-morpholin-4-ylethyl)-2-pyridin-4-ylquinazolin-4-amine        | HN N                                   |
| 11 | 4-[4-(2-pyridin-4-ylquinazolin-4-yl)piperazin-1-yl]phenol         | HO———————————————————————————————————— |

Table 3

| #  | Name  | Structure                                |
|----|---|--|
| 12 | 2-pyridin-4-yl-N-[(2R)-1,2,3,4-<br>tetrahydronaphthalen-2-yl]quinazolin-4-<br>amine | HN                                       |
| 13 | 4-piperazin-1-yl-2-pyridin-4-ylquinazoline  | HN N N                                   |
| 14 | 1,1-dimethylethyl 4-(2-pyridin-4-<br>ylquinazolin-4-yl)piperazine-1-<br>carboxylate |  |
| 15 | 2-pyridin-4-yl-N-[(2S)-1,2,3,4-<br>tetrahydronaphthalen-2-yl]quinazolin-4-<br>amine | HN N                                     |
| 16 | 4-[(1S)-2,3-dihydro-1H-inden-1-<br>ylmethyl]-2-pyridin-4-ylquinazoline              |  |
| 17 | (1R,2S)-1-[(2-pyridin-4-ylquinazolin-4-yl)amino]-2,3-dihydro-1H-inden-2-ol          | HO N N N N N N N N N N N N N N N N N N N |

Table 3

| #  | Name   | Structure |
|----|--|-----------|
| 18 | (1S,2R)-1-[(2-pyridin-4-ylquinazolin-4-yl)amino]-2,3-dihydro-1H-inden-2-ol         | HO,,,     |
| 19 | 1,1-dimethylethyl 4-[(2-pyridin-4-ylquinazolin-4-yl)amino]piperidine-1-carboxylate | HN—N—O—   |
| 20 | 2-pyridin-4-yl-N-{[2,4,6-<br>tris(methyloxy)phenyl]methyl}quinazolin-<br>4-amine   | HN—N—N    |
| 21 | N-piperidin-4-yl-2-pyridin-4-ylquinazolin<br>4-amine                               | HN—NH     |
| 22 | N-{(1S,2S)-2- [(phenylmethyl)oxy]cyclopentyl}-2- pyridin-4-ylquinazolin-4-amine    | HN,,,     |
| 23 | N-phenyl-N'-(2-pyridin-4-ylquinazolin-4-<br>yl)benzene-1,4-diamine                 |           |

Table 3

| #  | Name  | Structure                                |
|----|---|--|
| 24 | 3-[(2-pyridin-4-ylquinazolin-4-<br>yl)amino]naphthalen-2-ol           | HO N N N N N N N N N N N N N N N N N N N |
| 25 | N-{4-[(1-methylethyl)oxy]phenyl}-2-<br>pyridin-4-ylquinazolin-4-amine |  |
| 26 | (1S,2R)-1-[(2-phenylquinazolin-4-yl)amino]-2,3-dihydro-1H-inden-2-ol  | HN—N<br>N=<br>NOH                        |
| 27 | (1R,2S)-1-[(2-phenylquinazolin-4-yl)amino]-2,3-dihydro-1H-inden-2-ol  | HN—N<br>N—N                              |
| 28 | (1R,2R)-2-[(2-phenylquinazolin-4-yl)amino]cyclopentanol               | N NH OH                                  |
| 29 | (1R,2R)-2-[(2-phenylquinazolin-4-yl)amino]cyclohexanol                | N NH OH                                  |

Table 3

| #  | Name  | Structure                                   |
|----|---|---|
| 30 | (1S,2R,3R,5R)-3-(hydroxymethyl)-5-[(2-phenylquinazolin-4-yl)amino]cyclopentane-1,2-diol     | HO<br>HO<br>N<br>N<br>N<br>N<br>N<br>N      |
| 31 | (1S,2R)-1-[(6-chloro-2-pyridin-4-<br>ylquinazolin-4-yl)amino]-2,3-dihydro-1H-<br>inden-2-ol | HO N NH                                     |
| 32 | N-(2-piperazin-1-ylethyl)-2-pyridin-4-<br>ylquinazolin-4-amine                              | N—NH N—NH                                   |
| 33 | (1S,2R)-1-[(2-pyridin-3-ylquinazolin-4-yl)amino]-2,3-dihydro-1H-inden-2-ol                  | HN-N<br>N-N-N-N-N-N-N-N-N-N-N-N-N-N-N-N-N-N |
| 34 | (1R,2S)-1-[(2-pyridin-3-ylquinazolin-4-yl)amino]-2,3-dihydro-1H-inden-2-ol                  | HN—N—N—N—N—N—N—N—N—N—N—N—N—N—N—N—N—N—N—     |
| 35 | (1R,2R)-2-[(2-pyridin-3-ylquinazolin-4-yl)amino]cyclopentanol                               | N NH OH                                     |

Table 3

| #  | Name   | Structure       |
|----|--|-----------------|
| 36 | (1R,2R)-2-[(2-pyridin-3-ylquinazolin-4-yl)amino]cyclohexanol               | N NH OH         |
| 37 | (1S,2R)-1-[(2-pyridin-2-ylquinazolin-4-yl)amino]-2,3-dihydro-1H-inden-2-ol | HN—N<br>N=N     |
| 38 | (1R,2S)-1-[(2-pyridin-2-ylquinazolin-4-yl)amino]-2,3-dihydro-1H-inden-2-ol | HN—N<br>N—OH N  |
| 39 | (2S)-3-[(2-pyridin-4-ylquinazolin-4-yl)amino]propane-1,2-diol              | HO<br>N NH OH   |
| 40 | [(2S)-1-(2-pyridin-4-ylquinazolin-4-yl)-2,3-dihydro-1H-indol-2-yl]methanol | HON             |
| 41 | (2R)-2-[(2-pyridin-4-ylquinazolin-4-yl)amino]propan-1-ol                   | NH<br>HO N<br>N |

Table 3

| #  | Name  | Structure                                |
|----|---|--|
| 42 | (2S)-1-[(2-pyridin-4-ylquinazolin-4-yl)amino]propan-2-ol                                      | N—NH OH                                  |
| 43 | (1S,2R)-1-{[2-(2-ethylpyridin-4-yl)quinazolin-4-yl]amino}-2,3-dihydro-1H-inden-2-ol           | HO N N N N N N N N N N N N N N N N N N N |
| 44 | (1R,2S)-1-{[2-(2-ethylpyridin-4-yl)quinazolin-4-yl]amino}-2,3-dihydro-1H-inden-2-ol           | HO NH                                    |
| 45 | (1S,2R)-1-[(6-bromo-2-pyridin-4-ylquinazolin-4-yl)amino]-2,3-dihydro-1H<br>inden-2-ol         | HO/// N NH Br                            |
| 46 | (1S,2R)-1-{[6,7-bis(methyloxy)-2-pyridin-4-ylquinazolin-4-yl]amino}-2,3-dihydro-1H-inden-2-ol | HO:                                      |

Table 3

| #  | Name   | Structure                                |
|----|--|--|
| 47 | 1-(2-pyridin-4-ylquinazolin-4-<br>yl)piperidin-3-ol  | OH N N N N N N N N N N N N N N N N N N N |
| 48 | (1S,2R)-1-{[2-pyridin-4-yl-7-<br>(trifluoromethyl)quinazolin-4-yl]amino}-<br>2,3-dihydro-1H-inden-2-ol | HO<br>N NH<br>F <sub>3</sub> C           |
| 49 | (1S,2R)-1-({2-[6-(methyloxy)pyridin-3-yl]quinazolin-4-yl}amino)-2,3-dihydro-1H-inden-2-ol              | HN—N<br>N=<br>N-<br>O-                   |
| 50 | N-[(3S)-piperidin-3-yl]-2-pyridin-4-<br>ylquinazolin-4-amine   | N—NH NH                                  |
| 51 | (1S,2R)-1-[(7-methyl-2-pyridin-4-ylquinazolin-4-yl)amino]-2,3-dihydro-1H-inden-2-ol                    | HN—N<br>N—N                              |

Table 3

| #  | Name   | Structure          |
|----|--|--------------------|
| 52 | (1S,2R)-1-({2-[2,4-bis(methyloxy)pyrimidin-5-yl]quinazolin-4-yl}amino)-2,3-dihydro-1H-inden-2-ol | OH O-N-N           |
| 53 | (2R)-3-methyl-2-[(2-pyridin-4-yl)amino]butan-1-ol  | OH<br>N NH         |
| 54 | (2S)-3-methyl-2-[(2-pyridin-4-ylquinazolin-4-yl)amino]butan-1-ol                                 | N—NH OH            |
| 55 | (2S)-2-phenyl-2-[(2-pyridin-4-<br>ylquinazolin-4-yl)amino]ethanol                                | N—OH<br>N—NH       |
| 56 | (2R)-2-phenyl-2-[(2-pyridin-4-ylquinazolin-4-yl)amino]ethanol                                    | N OH NH            |
| 57 | (1S,2R)-1-[(2-pyridin-4-ylpyrimidin-4-yl)amino]-2,3-dihydro-1H-inden-2-ol                        | HN—N<br>N—N<br>N—N |

Table 3

| #  | Name  | Structure                                      |
|----|---|--|
| 58 | (1S,2R)-1-[(2-pyrazin-2-ylquinazolin-4-yl)amino]-2,3-dihydro-1H-inden-2-ol            | HN—N<br>N=N<br>N=N                             |
| 59 | (1S,2R)-1-{[2-(4-aminopyridin-3-yl)quinazolin-4-yl]amino}-2,3-dihydro-1H-inden-2-ol   | HN-N<br>N=NH <sub>2</sub><br>N-NH <sub>2</sub> |
| 60 | (2R)-3-phenyl-2-[(2-pyridin-4-<br>ylquinazolin-4-yl)amino]propan-1-ol                 | HO<br>''NH<br>N                                |
| 61 | (2S)-3-phenyl-2-[(2-pyridin-4-ylquinazolin-4-yl)amino]propan-1-ol                     | HO NH  |
| 62 | 2-[(phenylmethyl)(2-pyridin-4-<br>ylquinazolin-4-yl)amino]ethanol                     | N—N—N OH                                       |
| 63 | (1S,2R)-1-{[2-(2-aminopyrimidin-4-yl)quinazolin-4-yl]amino}-2,3-dihydro-1H-inden-2-ol | HN—N<br>N=N<br>H <sub>2</sub> N                |

Table 3

| ,, | Name .   | Structure  |
|----|--|--|
| #  | Name   | Structure  |
| 64 | 5-(4-{[(1S,2R)-2-hydroxy-2,3-dihydro-<br>1H-inden-1-yl]amino}quinazolin-2-<br>yl)pyridin-2-ol        | HN—N—N N—OH  |
| 65 | (1S,2R)-1-({2-[2-(methylthio)pyrimidin-<br>4-yl]quinazolin-4-yl}amino)-2,3-dihydro-<br>1H-inden-2-ol | HN-N-N-N-N-N-N-N-N-N-N-N-N-N-N-N-N-N-N-  |
| 66 | 2-{4-[(2-pyridin-4-ylquinazolin-4-yl)amino]piperazin-1-yl}ethanol                                    | OH N N NH  |
| 67 | N-piperidin-1-yl-2-pyridin-4-<br>ylquinazolin-4-amine  | N. NH<br>NN NN<br>NN<br>NN<br>NN<br>NN<br>NN<br>NN<br>NN<br>NN<br>NN<br>NN<br>NN |

- 31. A pharmaceutical composition comprising the compound according to any one of claims 1 30 and a pharmaceutically acceptable carrier.
- 32. A metabolite of the compound or the pharmaceutical composition according to any one of claims 1 -31.
- 33. A method of modulating the *in vivo* activity of a kinase, the method comprising administering to a subject an effective amount of a composition comprising at least one of the compound according to any of claims 1 30 and the pharmaceutical composition according to claim 31.

- 34. The method according to claim 33, wherein the kinase is Tie-2.
- 35. The method according to claim 34, wherein modulating the *in vivo* activity of Tie-2 comprises inhibition of Tie-2.
- 36. A method of treating diseases or disorders associated with uncontrolled, abnormal, and/or unwanted cellular activities, the method comprising administering, to a mammal in need thereof, a therapeutically effective amount of a composition comprising at least one of the compound according to any of claims 1 30 and the pharmaceutical composition according to claim 31.
- 37. A method of screening for a modulator of a Tie-2 kinase, the method comprising combining either a composition comprising at least one of the compound according to any of claims 1-30 and the pharmaceutical composition according to claim 31, and at least one candidate agent and determining the effect of the candidate agent on the activity of said kinase.
- 38. A method of inhibiting proliferative activity in a cell, the method comprising administering an effective amount of at least one of the compound according to any of claims 1 30 and the pharmaceutical composition according to claim 31, to said cell.